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☐ 1: Biol Reprod 1996 Sep;55(3):620-9

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Diploid expression of human leukocyte antigen class I and class II molecules on spermatozoa and their cyclic inverse correlation with inhibin concentration.

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A diploid expression of class I and class II human leukocyte antigens (HLA) has been found in purified spermatozoa by using double fluorescence labeling cytofluorometry and relevant monoclonal antibodies; this expression has been confirmed for the first time by the analysis of specific HLA mRNA and metabolic ³⁵S labeling followed by immunoprecipitation, which demonstrates an active ongoing translation of HLA proteins in germinal cells. Long-living mRNA coming from diploid germinal cells may be translated to HLA molecules in spermatozoa. This translation is controlled (or at least inversely correlated) by a testicular hormone (inhibin) in a cyclic fashion. Remarkably, serum levels of inhibin, synthesized by Leydig and Sertoli cells, follow a 12- to 13-day cycle, with a peak level at Day 6; this is probably controlled by FSH (not cyclic in males) and other testicular and/or unknown hormones. Peak levels of inhibin concur with the lower density and percentage of spermatozoa expressing both HLA class I and II molecules (close to 3% by cytofluorometry); lowest levels of inhibin coincide with the highest numbers (35-40%) of spermatozoa positive for both HLA molecules and a higher surface density. These observations could put to an end a disconcerting and long-lasting controversy on the expression/non-expression of HLA antigens on spermatozoa. The possibility that HLA-bearing spermatozoa are more capacitated for fertilization than those that do not bear HLA, and the implications of our results on male fertility control are also discussed.

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